INDUSTRIAL STANDARDIZATION

and Commercial Standards Monthly

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The American Standards Association is organized to provide systematic means of cooperation in establishing American Standards to the end that duplication of work and the promulgation of conflicting standards may be avoided; to serve as a clearing house for information on standardization work in the United States and foreign countries; to act as the authoritative American channel in international cooperation in standardization work

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Government Includes New ASA Safety Standards in Contracts

by

Cyril Ainsworth, *Assistant Secretary,*
American Standards Association

Public Works Administration demands use of accident prevention rules by contractors on all construction

The safety standards approved by the American Standards Association which are applicable to the construction industry have been rounded out by the ASA approval as American Recommended Practice of the Safety Manual developed by the Associated General Contractors of America. This action was taken on January 26, 1934.

Special consideration was given to this manual by the sectional committee because the Federal Public Works Administration had included in its form of contract for federal construction projects an article on accident prevention. Part of this article read as follows:

> "All machinery and equipment and other physical hazards shall be guarded in accordance with safety codes approved by the American Standards Association, unless such codes are incompatible with Federal, state, or municipal laws or regulations."

It was the desire of the sectional committee to be of as much assistance as possible to the Public Works Administration in carrying on its accident prevention work, and realizing that the existing standards approved by the ASA would not give contractors all the information that it would be desirable for them to have on ways and means of removing accident hazards, the committee approved the safety manual of the A.G.C. as an interim standard pending the completion of the American Standard on which the committee is now at work. Acting on the approval by the sectional committee, the sponsors of the ASA project, the National Safety Council and the American Institute of Architects, submitted the manual to the ASA for approval as American Recommended Practice.

The safety manual was compiled under the supervision of the Accident Prevention Committee of the A.G.C. as a text and guide book. It touches practically every phase of construction activity and includes sections on such topics as first aid, excavation, explosives, demolition, hoists and derricks, concreting, equipment upkeep, handling and storage of material, scaffolding, shoring, hand tools, motor trucks, tractors and teams, fire hazards and prevention, tunnels, camp sanitation and housing, temporary electrical installations, electrical equipment, loading and handling vehicles, conveyors, protection of the public, clothing, inspection, and many other phases of construction activity.

The standard is supplemented by other standards approved by the ASA as follows: Ladders, National Electrical Code, National Electrical Safety Code, abrasive wheels, floor and wall openings, railings and toeboards, protection of heads and eyes of industrial workers, lighting, mechanical power transmission, and the safety code for woodworking plants.

The inclusion of the article on accident prevention in the form of contract of the Public Works Administration marks the first recognition of the importance of accident prevention in the completion of federal construction projects. The plan for carrying on accident prevention work was developed and proposed to the Public Works Administration by the National Safety Council, previously mentioned as one of the sponsors of the ASA construction project and which is also a Member Body of the ASA. Both the Council and the Administration are to be congratulated on this forward step which cannot help but assist in making the construction industry one of the safest industries instead of one of the most hazardous.

Marsh Named Chairman

L. S. Marsh, Inland Steel Company, Chicago, has been elected chairman of the technical committee of the American Iron & Steel Institute, New York. One of the most important functions of this committee will be to deal with standards, particularly with reference to NRA codes.

Consumer Standards Study Undertaken by NRA Board

Dr. Robert A. Brady heads section of advisory board to study standards, labeling, and grading in compliance with consumer interests

The Consumers Advisory Board has been set up to consult with National Recovery Administration officials in writing industrial codes of fair competition, with the view of protecting the interests of the purchasing public in the fullest measure which it regards as consistent with the promotion of national recovery. Two other boards are expected to take a partisan view—the Industrial Advisory Board on behalf of the industries seeking to obtain codes to stabilize their operations, and the Labor Advisory Board in behalf of satisfactory wage and hour provisions.

Each industry writes its own draft of a code, which is put into shape for a formal hearing during preliminary meetings with the Deputy Administrator in charge. At the formal hearing argument is permitted to the code's proponents and to minority interests; and here the three advisory boards suggest amendments reflecting their separate points of view. Subsequent meetings between the industry and the Deputy Administrator reshape the code in the light of the hearing suggestions. It is then ready for submission for the approval of the Administrator. Except in the case of small industries, the President also must approve.

The recommendations of the advisory boards accompany the proposed codes as aids to the Administrator in reaching his decision whether to approve or to return the code for further hearings.

From the viewpoint of the purchasing public, the kind of clauses written into the codes is of great importance, since the fair practice provisions largely determine whether goods of known quality and at fair prices are to flow steadily to the store counters of the nation. A successful attempt to obtain price fixing or to restrict output in a production industry code will pyramid the effect all along the line.

For these reasons the Consumers Advisory Board considers that the "consumer" is the buyer at any point, whether he be a customer in a retail shop or a jobber buying from a producer. At first sight it would appear brash for a small group of advisers to enter into the complicated affairs of each industry for the purpose of making suggestions about the rules affecting conditions of sale and standards of quality. However, certain basic principles apply to all attempts to codify trade practices. The Consumers Board, on each of these principles, has formulated its position and instructed its staff representatives to apply them to specific code clauses as they come up in hearings, subject to certain exceptions which inevitably emerge in an undertaking such as the NRA.

To make its stand effective, the Board has been divided into complementary sections, under the general supervision of Mrs. Mary H. Rumsey, chairman of the Board, and of Dexter M. Keezer, its director. The price investigation section, headed by Corwin D. Edwards, makes studies of prices under the codes for the guidance of the staff advisers directly charged with following the progress of the codes. The price section is a channel for consumer complaints from the outside, and it assembles information to examine the validity of complaints.

The Board's code section analyzes codes from the consumer point of view, makes recommendations at hearings, and files reports, as previously described. More than 200 codes, covering the majority of American industry, have gone through the code-writing process, and are now in the critical administrative stage. That consumer representatives be appointed to the code authorities has been consistently urged by the Board as a means of making a continuing check on how the purchasing public is faring in actual code practice.

Consumer goods problems resolve themselves down to the ultimate facts of price and quality. The question of price is intimately bound to code provisions. It centers on such matters as specific price fixing, and standardized accounting to determine the costs below which many industries are not permitted to sell their goods. Each of these presents issues of great moment, yet of too involved a nature for summarization in a short article.

The question of standards for consumer goods is likewise highly involved. It has been considered at length in a report of the Board's committee on standards, headed by Dr. Robert S. Lynd.[1]

Dr. Robert A. Brady, professor of economics, University of California, heads the standards work of the board. Formerly a member of the staff of the National

[1] Published in the January, 1934, issue of INDUSTRIAL STANDARDIZATION AND COMMERCIAL STANDARDS MONTHLY.

Industrial Conference Board, and author of *Industrial Standardization* and *The Rationalization Movement in German Industry*, Dr. Brady will study existing standards provisions in codes and formulate suggestions for future code practice.

The Board has stated the concept that the quality of consumer goods is a function of their price, and that the opportunity for unscrupulous producers to engage in cutthroat competition by adulterating goods (since they are no longer to slice wages to gain a low cost advantage) should be lessened by writing minimum standards clauses into codes.

It is felt, that the consuming public and industry alike are becoming better informed on the need for specifications on goods which will let the buyer know their true content and meaning.

Quality Standards Suggested by NRA Code Administrator

The issue of quality standards under the NRA codes was officially raised by A. D. Whiteside, division administrator, in a report to General Hugh S. Johnson in reviewing recent hearings on the administration of a number of codes.

In his report, which is expected to be presented to President Roosevelt, Mr. Whiteside asked:

> "Can quality standardization and marking be enforced, so that the customer recognizes the grade purchased? If satisfied with seconds, at a lower price, what reasonable objection can be made to supplying subgrades?"

This question hits at provisions in many of the codes limiting the distribution of "seconds" or inferior grades, although aimed at an obvious and widespread abuse.

Mr. Whiteside suggested that some processes of industry yield a constant proportion of second-hand products, and that the production of only first-class goods might cause excessive expense and waste. Factors of loss or inevitable breakage, he pointed out, might in some cases make the necessity for first-grade products a minor objective.

Legislator Asks for Wide Standardization

For 13 years Representative Huddleston (Ala.) has been attempting to get Congress to pass a law branding all goods sold as to grade or quality. On January 3 he introduced a revised bill, text of which follows:

H.R. 6213
A BILL

To prevent frauds in commerce, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

That the Bureau of Standards is authorized to adopt and prescribe marks indicating the quality, durability, usefulness, size, strength, grade, quantity, composition, origin, date and process of production, weight, and measure of all of the objects of commerce, and to adopt regulations for the use of such marks thereon or therewith.

SEC. 2. It shall be unlawful to place in interstate commerce any subject of commerce without having complied with the regulations, if any, applicable thereto which may have been adopted under the authorization of the first section of this Act.

SEC. 3. It shall be unlawful for any dealer, or any person who has acquired same for the purpose of resale, to remove from any subject of commerce any mark placed thereon in compliance with this Act.

SEC. 4. Violations of this Act shall be punishable by imprisonment for not more than two years and a fine of not more than $5,000, either or both.

Simplified Practice Recommendation for Fiber Boxes

Simplified Practice Recommendation R146-33, covering corrugated and solid fiber boxes for canned fruit and vegetables, is now available in printed form, according to an announcement by the Division of Simplified Practice of the National Bureau of Standards.

The recommendation provides a simplified list of 41 different sizes of corrugated and solid fiber boxes. The sizes of these shipping boxes are based on standard units of pack for the 27 simplified sizes of fruit and vegetable cans as approved by a general conference of the industry on January 20, 1931.

Copies of this recommendation can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., or through the ASA office, at five cents each.

International Standards for Electric and Magnetic Magnitudes and Units

by

A. E. Kennelly, *Honorary Secretary*
U. S. National Committee
International Electrotechnical Commission

The following is a brief abstract of the actions taken by the international committee on Electric and Magnetic Magnitudes and Units (EMMU),[1] in the course of a two-day meeting (Paris, October 5-6, 1933), the agenda for which had been circulated by the Central Office in London, several months in advance, to all the national committees of the International Electrotechnical Commission. The official minutes of the meeting have since been circulated among the twenty countries supporting the IEC, in both official languages (English and French) in a 6-page printed document IEC. R.M. 105, to which all interested readers are referred. Those minutes will probably be confirmed, unless objections are raised by the national committees.

The meeting, under the chairmanship of Dr. A. E. Kennelly, representing the U. S. National Committee, was held at the Laboratoire Central d'Electricité, Paris. It was attended by delegates from nine countries. France was represented by the distinguished physicist and electrical engineer M. Paul Janet, the chairman of Advisory Committee No. 1. The President of the IEC, Dr. A. F. Enström also attended, as well as the IEC General Secretary, C. Le Maistre. Professor H. A. Abraham, General Secretary of the IPU (International Union of Pure and Applied Physics), also took part.

Unit names—

It was unanimously agreed to recommend the name *weber* for the unit of magnetic flux Φ in the practical series of electromagnetic units (10^8 *maxwells* or cgs magnetic units).

It was agreed, but not unanimously (three countries objecting), to recommend the name *hertz* for the unit of frequency in all existing unit systems (one cycle per second).

Unit symbols—

It was agreed without dissent that the list of IEC recognized symbols should be recommended to Section C, for two small modifications, namely that the symbol for mmf should be $\mathcal{F}$, and the symbol for magnetic flux should be Φ, in relation to both cgs and practical magnetic units. Section C of Advisory Committee 1 has jurisdiction over IEC international symbols.

CGS unit definitions—

It was unanimously agreed to endorse the convention arrived at by the EMMU committee at Oslo, in July 1930, that the magnetic quantities magnetizing force H, and flux density B, are physically different, so that their ratio in free space, the space permeability μ_0, should be taken as having dimensions other than merely numerical, and such that the cgs magnetic unit of H may be called the *oersted*; while that of B may be called the *gauss*. In conformity with this Oslo convention, it was agreed that it is desirable to introduce the symbol into several specified magnetic equations where it has not always been inserted.

It was also unanimously agreed that the Oslo definition for the magnetic quantity flux density B, was incomplete, as given in IEC Document RM 77. It was voted to supplement that definition by adding the following sentence:—

> "The value of the flux density at a point may be evaluated either by the mechanical force exerted on an element of conductor carrying a current placed at the point, or by the electromotive force produced in an element of a circuit surrounding the point."

Practical unit of magnetomotive force—

The question was debated whether the practical unit of mmf should be the *ampere-turn* or the 4πth part of an ampere-turn. In the former case, the practical series of units would be subrationalized. In the latter, they would be similar to the cgs magnetic units, or classical.

In view of differences of opinion over this question, it was unanimously agreed to leave the question

[1] This committee is Section B of Advisory Committee 1 on Nomenclature of the International Electrotechnical Commission.

open, and undecided for the present, thus leaving authors free to choose which procedure they wished to follow.

Completion of the practical series of units into an independent system—

It is recognized that the existing series of nine practical units (*ohm, volt, ampere, coulomb, farad, henry, joule, watt,* and *weber*), although they stand in simple mutual interrelation with one another and with the *second* as unit of time, are ordinarily defined as decimal dependents of the fundamental cgs system. Thus 1 *volt* is 10^{+8} cgs units or *abvolts*, 1 *ampere* is 10^{-1} *abampere*, and so on. These decimal ratios are difficult to remember. Maxwell certainly showed, many years ago, that the practical series of units could be completed into a comprehensive system by taking the earth *quadrant* or 10^{9} cm, as unit of length, and the eleventh-gram (10^{-11} gm), as unit of mass; but those values of unit length and mass are so very awkward that nobody has ever seriously recommended their practical use. It has since been shown, however, that various other pairs of length and mass units might be used to complete the practical series into a practical system, if the numerical value of space permeability μ_0 were changed from unity, in some particular decimal ratio. In particular, Giorgi showed in 1901 that if the value of space permeability μ_0 were taken as 10^{-7} unrationalized, or $4\pi\times10^{-7}$ rationalized, the *meter* would become the proper unit of length, and the *kilogram* the proper unit of mass, in order to complete the practical series. This proposed system is known as the Giorgi system, or the MKS system, or the definitive system.

The American Section of the IPU (International Union of Pure and Applied Physics), meeting at Chicago in June, 1933, adopted a resolution recommending the MKS system for completing the practical series of electrical units. The EMMU meeting, at Paris in October, unanimously endorsed the same resolution, and recommended the MKS system to the consideration of the various IEC national committees.

Conventional direction of inductively reactive power in diagrams—

The American proposition for representing inductively reactive power output as negative or downwards, in unspecified right-angled power diagrams, was unanimously adopted, following the recommendation of the A.I.E.E. Standards Committee. This means that, unless otherwise specified, a power output alternating-current diagram shall be understood as marking + P *watts* − j *vars* for reactively inductive load, and + P *watts* + j *vars* for condensively reactive load; so that lagging output current shall conform in direction with lagging output power.

Leslie Peat Is ASA Editor

Leslie Peat, until recently editor of *Automotive Industries*, the leading technical weekly in the automotive field, has been appointed editor of INDUSTRIAL STANDARDIZATION AND COMMERCIAL STANDARDS MONTHLY. Mr. Peat, a former foreign correspondent and news executive of New York and other metropolitan papers, is a member of the Society of Automotive Engineers and has served on several committees of that organization. He succeeds Arthur Kallet, recently resigned, as editor.

Manufacturers Use A.P.I. Monogram

The annual standardization bulletin of the American Petroleum Institute, Division of Production, covering the period September, 1932, to August, 1933, includes a report on the use of the A.P.I. monogram by manufacturers of oil field equipment. During 1932, 228 licensed manufacturers used the monogram on materials produced to A.P.I. specifications. These materials included belting, cable, tools, derricks, pipes, wire rope, pumps, and tanks. J. Edgar Pew, general chairman of the A.P.I. Central Committee on Standardization comments as follows on the standardization work covered in the Bulletin:

> "Our standards were developed after many years of exhaustive study, experiment, and research on the part of the over 400 members of our committees, composed of the best brains in their respective lines of activity. It is conservatively estimated that the time and expenses of these committeemen represent an outlay of over $1,000,000. In excess of another million dollars has been expended by the manufacturers for master and working gages alone, making an expenditure of over $2,000,000 in order that standardized equipment might be made available to the industry. This is a tremendous investment in cooperation, the benefits of which can be made available to any one on demand.

The specifications are available at a nominal price—the gages are in the hands of the manufacturers—there is no longer any excuse for not specifying A.P.I. standards from the standpoint of availability. The benefits to be derived from their use are at our hands if we but avail ourselves of the opportunity."

The Bulletin summarizes amendments and revisions adopted by standardization committees during the year. A review of the status of other items under consideration is also included.

British Find Wide Use for Standard Specifications

The following is an abstract of an article published in "Industrial Britain."

The British Standards Institution now comprises over 600 committees with some 3,500 engineers and business men as members. So far some 600 British standard specifications have been issued, covering mainly engineering and its allied industries. With the advent of the cooperation of the chemical interests of the country and the enlargement of its building section, the scope of the work has been much widened and the specifications are accordingly beginning to deal with the requirements of most of the great industries of the country.

These British standard specifications are based on what is best in present practice without attempting to attain an ideal too costly for industry to adopt. In some cases they actually guide industrial practice toward improvement; in others they have definitely prevented the development of chaotic conditions which would have resulted if standardization had not been adopted. They provide a generally suitable standard of quality for materials or performance of machinery or apparatus, and enable manufacturers to build up stock during slack times and thereby to supply purchasers more rapidly with their requirements. In this way they tend to stabilize employment.

They provide also an equitable basis for comparing tenders, and this is of the highest importance. In fact, buying to such nationally recognized specifications safeguards purchasing by insuring quality and performance and, in addition, tends to bring about fairer dealings all around. Again, where the safety of the workers is concerned they are of material benefit.

The specifications are kept up to date, they do not interfere with individual initiative and invention, and they leave the producer as much freedom as possible in his methods of production. Wherever possible, the specifications deal only with performance.

The work is divided into four main divisions: namely, engineering, chemical, and building, provision having been made for a textile division as and when the necessity and desirability arises.

As an example of the possibilities in the reduction of redundant sizes tramway rails may be cited, which through standardization were reduced from 75 to five sections, and also colliery rails, which more recently were reduced from 500 sections to 14.

A British Standard Specification has been set up for the sizes of granite curbs used for the margins of our great new roads. The stone quarry industry, due to seasonal and other causes, is one in which the products are in somewhat intermittent demand. A British Standard acceptable to the highway authorities, who are the users of the granite curbs, will enable the quarry masters to keep their men in constant employment in making these curbs, certain that the stocks will be used when the orders come in again; that is to say, such a standard is stabilizing employment.

These are only a few examples, but so successful have they and others been that the term "British Standard" has come to be regarded as signifying a high degree of reliability and soundness.

Fifth Annual Safety Conference Will Be Held in New York

The Fifth Annual Greater New York Safety Conference, under the auspices of the Metropolitan Chapter of the American Society of Safety Engineers—The Engineering Section of the National Safety Council, and 56 cooperating organizations including the American Standards Association, will be held at the Pennsylvania Hotel, New York, March 6-7, 1934. The sessions to be held on Tuesday, March 6, include New Aspects of the Accident Problem; Handling Materials; Safety Organization; Commercial Vehicle; Plant Insurance Managers; Fire Prevention. The Wednesday sessions, March 7, include Falls of Persons; Safety Equipment; Industry and Public Safety; Dust Problem in Industry; Building Maintenance; Stevedoring; Hotels and Restaurants; School Shop Hazards; and Construction.

Admission to the sessions is without charge.

John E. Long, president of the National Safety Council and safety director of the Delaware and Hudson Railroad, will be toastmaster at the banquet

on Tuesday evening, March 6. The speakers will be Dr. Riley M. Little, Director of the Rehabilitation Division of the New York State Education Department, and Frank L. Jones, vice-president of the Equitable Life Assurance Society of the United States.

Cyril Ainsworth, assistant secretary of the American Standards Association, is chairman of the Metropolitan Chapter, American Society of Safety Engineers.

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Foreign Standards Available from ASA

New foreign standards available to ASA Members for loan or purchase through the ASA office are listed below. They are available in the language of the country under which they are listed. In requesting copies of the standards it is necessary to list only the serial numbers preceding the titles. Send either a post-card or a note containing the name of the person wishing to receive the standards, and the numbers of the standards desired. The card or envelope should be addressed to the American Standards Association, 29 West 39th Street, New York, N. Y.

Serial Number — *Italy*

459. Series of normal tapers for mechanical purposes
460. Countersunk nibbed head screws, cold pressed and rolled type, metric thread MA (normal)
461. Countersunk nibbed head screws, rough, metric thread MA (normal)
462. Cylindrical head screws, rough (deck bolts), metric thread MA (normal)
463. Large flat countersunk head screws, with square neck, rough, metric thread MA (normal)
464. Large flat countersunk nibbed head screws, cold pressed and rolled type, metric thread MA (normal)
465. Large nibbed head screws, cold pressed and rolled type, metric thread MA (normal)
466. Large snap head screws, rough, with square neck, metric thread MA (normal)
467. Metric screws with circular contour heads, reference sheet
468. Metric thread series MA (normal) for bolts
469. Metric thread series MB (fine) for bolts

A.S.T.M. Standards on Electrical Insulating Materials

The American Society for Testing Materials has published *A.S.T.M. Standards on Electrical Insulating Materials* prepared by Committee D-9 on Electrical Insulating Materials. The book contains all of the 32 A.S.T.M. specifications and methods of test covering electrical insulating materials, as well as the 1933 report of Committee D-9.

New tentative standard test methods and specifications included in the publication cover flexible varnished tubing, black bias-cut varnished cloth tape, asbestos roving and thickness tests for sheet and tape. New standards adopted this year cover molded materials, insulating oils, asbestos yarns and tape, tests for resistivity, and tolerances and tests for electrical cotton yarns. Revised standard test methods cover sheet and tape insulating materials (dielectric strength and thickness), compounds used for splicing cables and filling potheads, untreated paper, varnished cloths and cloth tapes, and grading natural mica (size, commercial quality, and thickness).

Other widely used A.S.T.M. standards included in the publication relate to electrical porcelain, varnishes, tests for power factor and dielectric constant, laminated sheet materials, pasted mica, friction tape, rubber insulating tape, rubber gloves, and matting.

The report of Committee D-9 explains the changes in the standards under its jurisdiction, points out the need for the new tentative specifications and methods, and details the many research activities sponsored by the several subcommittees.

Copies of the publication, in heavy paper cover, can be obtained from the American Society for Testing Materials, 1315 Spruce Street, Philadelphia, or from the American Standards Association, at $1.25 per copy.

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A.S.T.M. Publishes Revised Standards for White Pigments and Dry Red Lead

The revised Standard Methods of Routine Analysis of White Pigments (A.S.T.M. D 34-33; ASA K15-1933) and Standard Methods of Routine Analysis of Dry Red Lead (A.S.T.M. D 49-33; ASA K16-1933), recently approved by the American Standards Association, have been printed and may be purchased at 25 cents each. Copies are available from the American Society for Testing Materials, 260 South Broad Street, Philadelphia, or from the American Standards Association. ASA Members are entitled to the usual 20 per cent discount.

ASA PROJECTS

A Review of Mechanical Engineering Projects Under ASA Procedure

The fourth of a series of reviews of standardization projects under the procedure of the American Standards Association

The status of all mechanical engineering projects under the procedure of the American Standards Association, with the exception of the safety code projects, is summarized in the following review. The report of the safety code projects was published in the issue of November, 1933. The data presented in this review are taken from the files of the American Standards Association and are corrected to January 1, 1933, bringing up to date the review of mechanical projects published in the issue of February, 1933.

B1—Screw Threads

Sponsors—American Society of Mechanical Engineers; Society of Automotive Engineers.

Details of the proposed revision of the American Standard for Screw Threads for Bolts, Machine Screws, Nuts and Commercially Tapped Holes (B1a-1924) were decided on by the sectional committee in its meeting of January 11, 1933 (see INDUSTRIAL STANDARDIZATION, February, 1933, page 40).

The proposed revision has now been brought into final shape by the editing committee, to be sent to the members of the sectional committee for letter ballot vote. Without unforeseen delay, it may be expected that the revised standard will be approved by the ASA and printed in about four months.

The proposed standard for acme threads is expected to be ready soon for distribution to industry for general criticism and comment.

A proposal on the minor diameters of threads for wood screws is still to be developed.

B2—Pipe Thread

Sponsors—American Gas Association; American Society of Mechanical Engineers.

The sectional committee has reached agreement on the revision of the American Standard for Pipe Thread (B2-1919) in so far as the nominal dimensions and manufacturing limits of the threads on the product are concerned. Efforts to unify the thread lengths of American Standard taper threads and the corresponding API threads (API Standard 5L-1931) have led to agreement on the values for nominal sizes below 1½ inch. The American Standard values as given in B2-1919 have been adopted for this range. Accordingly, there will be no change in the original values for nominal sizes and limits for taper pipe threads as given in the American Standard B2-1919. Final action on the revision of the sectional committee is awaiting decision on certain questions concerning the method of gaging and the tolerances for thread gages themselves.

B3—Ball and Roller Bearings

Sponsors—American Society of Mechanical Engineers; Society of Automotive Engineers.

The American Standards so far approved by ASA, partly in revised edition, were to have been printed in three pamphlets: Radial Ball Bearings, Single Row Type and Separable (Open) Type (B3.1-1933); Annular Ball and Roller Bearings, Wide Type (B3.2-1930, formerly designated as B3b-1930, not revised); and Ball Bearings, Angular Contact Type (B3.3-1933). The printing has been delayed, however, partly because further revisions of minor details are expected.

Two new proposals, one on Taper Roller Bearings, and the other on Adapter Sleeve Bearings, were completed by the sectional committee and referred to the sponsors for submission to the ASA for final approval.

B4—Allowances and Tolerances for Cylindrical Parts and Limit Gages

Sponsor—American Society of Mechanical Engineers.

Subcommittee 1 on Tolerance Systems met in June and in December, 1933. A proposed series of fits in the Basic Shaft system is being developed. The proposed ISA system, an international unified system developed by a committee of the International Standards Association, and a "constant maximum

hole" system for holes finished with solid reamers are being given careful consideration.

B5—Small Tools and Machine Tool Elements

Sponsors—American Society of Mechanical Engineers; National Machine Tool Builders Association; Society of Automotive Engineers.

Technical Committee 1—T-Slots.—There has been no revision of the American Tentative Standard B5a-1927. No action has yet been taken in regard to the proposed change in the tongue dimension reported last year.

Technical Committee 2—Tool Holder Shanks and Tool Post Openings.—No revision of American Standard B5b-1929 is considered at this time.

Technical Committee 3—Machine Tapers.—A composite series of self-holding (slow) tapers has been under consideration as a proposed American Standard for several years. In its December, 1933, meeting, the sectional committee voted to refer this proposal to the sponsors for submission to ASA for final approval.

Work on the self-releasing (steep) taper series (with cam-lock device) has been substantially completed, except for the very large tapers. The patent situation requires clarification but committee members do not expect it to cause difficulties that would prevent the series from being approved.

Technical Committee 4—Spindle Noses and Collets for Machine Tools.—Tests for new forms of spindle noses have been carried on, but the committee has decided to make no definite recommendations until business conditions improve.

Technical Committee 5—Milling Cutters.—No revision of American Standard B5c-1930 is considered at this time.

Technical Committee 6—Designation and Working Ranges for Machine Tools.—No progress can be reported.

Technical Committee 7—Twist Drill Sizes.—Since the last report, published in February, 1933, a few changes were made in proposal "C" which were generally agreeable to the user groups. The drill manufacturers represented on the Drill and Reamer Division of the Metal Cutting Tool Institute are still opposed to the proposal. In the spring of 1933 Technical Committee 7 approved the proposal by a majority vote, the manufacturer representatives dissenting. A letter ballot of the sectional committee held late in the summer also showed complete acceptance by the user groups, but opposition by the Metal Cutting Tool Institute. The proposal was referred to the sponsor bodies in whose hands the matter is still resting.

Technical Committee 8—Drill Jig Bushings.—The proposal on Jig Bushings, published for general criticism and comment in 1932, was referred back to the technical committee to include head dimensions. A revised draft giving these additional data is expected to be completed shortly.

Technical Committee 9—Punch and Die Holders.—A proposed American Tentative Standard for Punch and Die Sets was published in 1932 and comments received were considered by the technical committee in December, 1932. Subgroups have since met, but are not yet ready to submit a new report. Enlargement of the technical committee's membership is being considered.

Technical Committee 10—Circular Forming Tools and Holders.—Since the November, 1932, proposal was published for general comment and criticism, a final decision has been reached in regard to machine grouping, widths, method of adjusting, and other details. A 13-page questionnaire covering recommended standards for circular and dovetail forming tools has been mailed to 100 selected concerns.

Technical Committee 11—Chucks and Chuck Jaws.—This technical committee has completed its work as far as it feels it is practical to carry it until Technical Committee 4 completes its work on Lathe Spindle Noses. It is expected that completion of its task will then take only a short time.

Technical Committee 12—Cut and Ground Thread Taps.—Since the American Standard B5e-1930, Taps: Cut and Ground Threads, was approved, economic conditions have created demand for less expensive taps. This has indicated the need for tolerances wider than those given in the American Standard. The technical committee has practically completed a proposed revision of the American Standard, which is to replace a great deal of its data as well as make additions to the original standard.

Technical Committee 13—Splines and Splined Shafts.—Developments in regard to the involute form of spline are still being watched by the technical committee. Definite progress during 1934 is expected.

Technical Committee 14—Electric Welding Dies and Electrode Holders.—No progress report has been made.

Technical Committee 15—Milling Machine Tables.—A proposal has been drafted concerning sizes and distances of T-slots for milling machine tables in widths from 3 to 32 in., and nomenclature of the more common milling machine table types.

Technical Committee 16—Rotating Tool Shanks.—Subgroup (1), on Drill, Reamer, and Tap Shanks, has reached a working agreement with the Metal Cutting Tool Institute and recommendations from the latter are expected. Subgroup (2), on Bit Brace Shanks is still investigating the necessary number of sizes. Inactivity of the industry has delayed progress. Subgroup (3), on Socket Wrench and Screwdriver Shanks for Rotating Drivers, is completing a proposed standard.

Technical Committee 17—Nomenclature.—Tentative reports on the nomenclature of power press tools, and on lathe tool nomenclature have been submitted by the respective subgroups.

Technical Committee 18—Drill Head Spindles and Bearings.—Tentative proposals have been developed for nomenclature and for adapters and drivers for plain spindle ends of drill presses.

Technical Committee 19—Single Point Cutting Tools.—It was decided to organize a technical committee on this subject.

B6—Standardization of Gears

Sponsors—American Gear Manufacturers Association; American Society of Mechanical Engineers.

Specification B6.2-1933, Gear Materials and Blanks, has been approved as an American Recommended Practice.

B16—Pipe Flanges and Fittings

Sponsors—American Society of Mechanical Engineers; Heating and Piping Contractors National Association; Manufacturers Standardization Society of the Valve and Fittings Industry.

A proposed standard for Steel Welding Neck Flanges (B16e1) was published for general criticism and comment in May, 1933.

A series of adjusted steam service pressures for steel fittings at temperatures above and below 750 F has been developed. This covers temperatures from 500 to 850 F, for pressure stages from 150 to 1500 lb per sq in.

The revision of Port Openings for 125 lb cast iron flanged fittings, sizes 14 to 24 in., was dropped. A canvass of the industry showed that there was no pressing need for changes.

A proposed standard for Ammonia Fittings was approved by Subcommittee 1 on Cast Iron Flanges and Flanged Fittings for release to industry for criticism and comment.

B17—Standardization of Shafting

Sponsor—American Society of Mechanical Engineers.

The revision of four American Standards previously developed by this committee has appeared to require settlement of a question regarding the use of a 5/16 inch key. It is deemed likely that agreement will be reached in the near future.

B18—Bolt, Nut and Rivet Proportions

Sponsors—American Society of Mechanical Engineers; Society of Automotive Engineers.

The American Standard for Dimensions of Wrench-Head Bolts and Nuts and Wrench Openings (B18.2-1933) was approved by the ASA. This is a revision of the American Tentative Standard B18b-1927 and its most important new feature is the inclusion of heavy bolt heads and nuts as used, for example, in pipe line work.

Research work by the rivet manufacturers on the production design of the high-button head is still going on. Completion of this research and the addition of dimensions and tolerances for rivet sets will bring the draft standard for Large Rivets into shape for submittal to the sectional committee.

A draft standard for Socket Type Set and Cap Screws, dated February, 1933, was published for general criticism and comment. It is now being revised on the basis of suggestions received, and submission to the sectional committee may be expected shortly.

B26-1925—Screw Threads for Fire-Hose Couplings

Sponsors—American Society of Mechanical Engineers; American Water Works Association; National Board of Fire Underwriters.

There has been no change in the status of this project since the last review of mechanical engineering projects.

B27—Plain and Lock Washers

Sponsors—American Society of Mechanical Engineers; Society of Automotive Engineers.

No progress can be reported.

B29—Transmission Chains and Sprockets

Sponsors—American Gear Manufacturers Association; American Society of Mechanical Engineers; Society of Automotive Engineers.

There has been no change in the status of the American Standard for Roller Chains, Sprockets and Cutters (B29a-1930). No progress can be reported on standardization of silent chains.

B31—Code for Pressure Piping

Sponsor—American Society of Mechanical Engineers.

Due to the great activity of this sectional committee, it was able to complete its work on the draft of the combined code for power, gas and air, oil, and district heating. In November, 1933, this was printed in proof form and distributed for general criticism and comment. At its December meeting the sectional committee voted to submit the draft, slightly revised on the basis of comments received, to a letter ballot of its members. Submission to ASA is expected in the near future.

B32—Wire and Sheet Metal Gages

Sponsors—American Society of Mechanical Engineers; Society of Automotive Engineers.

No progress can be reported. On account of interest shown in this project by several groups, the problem of actively taking up the work has been considered and steps to this effect have been taken.

B33—Hose-Coupling Screw Threads (Nominal Sizes ½ to 2 In., Inclusive)

Sponsor—American Society of Mechanical Engineers.

The proposed American Standard for Hose-Coupling Screw Threads was sent to letter ballot of the sectional committee. It subsequently appeared that some controversial points require further discussion.

B36—Standardization of Dimensions and Material of Wrought-Iron and Wrought-Steel Pipe and Tubing

Sponsors—American Society of Mechanical Engineers; American Society for Testing Materials.

Subcommittees 2 and 3 on Pipe and Tubing for Low and High Temperature Service, respectively, have been cooperating in the preparation of a proposed standard for Wrought Iron and Wrought Steel Pipe. In February, 1933, proof copies of this proposal were sent for general criticism and comment. In March the replies received were discussed at a meeting where Subcommittee 3 presented a proposal covering the specific application of the draft standard to the steel flange standards covering pressures ranging from 150 to 1500 lb.

The sectional committee approved by letter ballot a number of A.S.T.M. pipe specifications for submission to ASA. This submission can take place when the A.S.M.E., in whose hands the case is now, has given its approval as the joint sponsor.

B38—Standards and Specifications for Refrigerators

Sponsors—American Society of Refrigerating Engineers; Bureau of Home Economics, U. S. Department of Agriculture.

The work of the Sectional Committee on Standards and Specifications for Domestic Refrigerators is impeded by inability of its Subcommittee 3 to secure agreement upon a test code for mechanically operated refrigerators.

Representatives of the National Electrical Manufacturers Association in November, 1931, made available a tentative draft of a test code which had been prepared in their organization, but shortly thereafter withdrew it. Subsequently a draft of a test code which had been developed by Electrical Testing Laboratories under electrical utility auspices was made available to the subcommittee. The members of the subcommittee other than the manufacturers' representatives were inclined to proceed with the development, utilizing this draft as a starting point. The manufacturers' representatives, however, stated that a technical group within the Refrigeration Division of N.E.M.A. were engaged in developing a test method for N.E.M.A. purposes and urged that it receive consideration. This was agreeable to the subcommittee, but the manufacturers have not yet submitted their material. It is the hope of the sectional committee that this N.E.M.A. test code may be forthcoming promptly, in which event progress can be resumed.

B40—Pressure and Vacuum Gages

Sponsor—American Society of Mechanical Engineers.

Subcommittee 2 on Definitions has prepared a proposed list of definitions for the parts of pressure and vacuum gages of the dial type utilizing an elastic container for confining the pressure medium. This list has been published for general criticism and comment. It has also prepared a proposal for General Rules for Pressure and Vacuum Gages, Dial Type, and for proposed Gage Purchase Specifications.

Subcommittee 3, on Gage Sizes and Mounting Dimensions, has canvassed a number of manufacturers of gages of the Bourdon type, and is now using the data collected for drafting a proposal.

Subcommittee 4, on Accuracy and Test Methods for Pressure Gages, completed a draft standard on test requirements for the degree of accuracy and the methods of expressing the degree of accuracy, as well as on the classes of gages to be recommended, in February, 1933. In June this was sent to a number of manufacturers to collect further data which are now being considered.

B42—Leather Belting

Sponsor—American Society of Mechanical Engineers.

No progress can be reported.

B43—Dimensions of Machine Pins

Sponsors—American Society of Mechanical Engineers; Society of Automotive Engineers.

No progress can be reported.

B44—Industrial Thermometers

No progress can be reported.

B45—Foundry Equipment

Sponsors—American Foundrymen's Association; American Society of Mechanical Engineers.

No progress can be reported.

B46—Classification and Designation of Surfaces According to Quality of Surface

Sponsors—American Society of Mechanical Engineers; Society of Automotive Engineers.

Subcommittee 1, on Standardization of Surfaces Produced by Tools and Abrasives, held its organization meeting in October. Two subgroups were appointed, one on Surfaces Produced by Abrasives, and the other on Surfaces Produced by Tools. Both subgroups held meetings in December where the program of work and the method of dealing with it were discussed.

Subcommittee 4, on Symbols for Indicating Surface Quality on Drawings, has nearly completed a tentative proposal.

Subcommittee 5, on Ways, Means and Apparatus for Measuring Quality of Surface, held two meetings. A memorandum on a Preliminary Method of Comparison of Surfaces Generated by Abrasives was prepared by H. J. Wills; a Brief Review of Work Done on Finish of Metal Surfaces, by J. R. Weaver; and a memorandum on Definitions and Notations for Measurement of Surface Quality by Professor F. A. Firestone.

B47—Plain and Thread Plug and Ring Gage Blanks

A revision of this American Standard was approved by ASA as B47-1933 (see INDUSTRIAL STANDARDIZATION, November 1933, page 201). Published by the Bureau of Standards as Commercial Standard for Gaging Blanks (CS8-33) it became effective as a Commercial Standard as of January 1, 1934.

B48—Inch-Millimeter Conversion for Industrial Use

The American Recommended Practice B48.1-1933 on this subject was approved by ASA in March, 1933. The development of additional more extensive conversion tables for practical use in industry is now under consideration.

B49—Shaft Couplings, Integrally Forged Flange Type for Hydro-Electric Units

Sponsor—American Society of Mechanical Engineers.

No change in status has taken place.

B50—Unification of Rules for the Dimensioning of Furnaces for Burning Solid Fuel

Sponsor—American Society of Mechanical Engineers.

This new project developed from a request by the A.S.M.E. that a sectional committee be organized to work out an American Recommended Practice for the setting of small boilers. Upon advice of a special committee, the A.S.M.E. was appointed sole sponsor and the organization meeting was held in June. It was decided to form five subcommittees: (1) on Scope; (2) on Combustion and Design; (3) on Warm Air Furnaces; (4) on Steel Heating Boilers (internally and externally fired); and (5) on Cast Iron Boilers.

A.S.M.E. Requests Project for Classification of Lubricants

The American Society of Mechanical Engineers has requested the American Standards Association to authorize the initiation of a project and the organization of a sectional committee to develop a system of classification of lubricants for industrial use based upon viscosity numbers. This request from the A.S.M.E. has resulted from consideration given to this problem at recent meetings of the Petroleum Division of the Society.

In its request the Society points out that viscosity should be considered as a dimension of the lubricant and not as an indication of quality. Further, the Society calls attention to the advantages of a standard classification of industrial lubricants, indicating that machine designers and builders, and industries using lubricants, as well as producers will be benefited through the development of such a standard.

Standard Specifications Expanded for Lodgepole Pine and Douglas Fir Poles

by
R. H. Colley[1]
and
R. C. Eggleston[2]

The American Standard for Ultimate Fiber Stresses of Wood Poles (O5a-1930) has been expanded by the American Standards Association (December 27, 1933) to include the following ultimate fiber stress values (O5a-1933):

Lodgepole pine poles	6600 lb per sq in.
Douglas fir poles (creosoted)	7400 lb per sq in.

On the same date Dimensions of Lodgepole Pine Poles (O5f2-1933) and Dimensions of Creosoted Douglas Fir Poles (O5g2-1933) were approved as American Standards, and Specifications for Lodgepole Pine Poles (O5f1-1933) and Specifications for Douglas Fir Poles (O5g1-1933) as American Tentative Standards.

The preparation and development of the new standards was begun by the Sectional Committee on Wood Poles (O5), under the sponsorship of the ASA Telephone Group, following the announcement of the standards for northern cedar, western cedar, chestnut, and southern pine poles in July, 1931. The new standards were developed through the coordinated efforts of four subcommittees of the sectional committee; namely, the Subcommittee on Specifications for Lodgepole Pine Poles, which was headed by R. W. Lindsay of the Mountain States Telephone and Telegraph Company; the Subcommittee on Specifications for Douglas Fir Poles, H. Michener of the Southern California Edison Company, chairman; the Subcommittee on Fiber Strength, with A. B. Campbell of the Edison Electric Institute acting as chairman in place of Harold Dean who formerly headed this subcommittee; and the Subcommittee on Pole Dimensions under the chairmanship of J. S. Ware of the Public Service Electric and Gas Company.

The Subcommittee on Fiber Strength concluded after a study of available data and commercial practice that the strength rating of creosoted Douglas fir of the Coast type should be the same as the rating for creosoted southern pine poles; namely, 7400 pounds per square inch. In the case of lodgepole pine poles, the subcommittee followed the same procedure that was employed in arriving at standard fiber stresses for creosoted southern pine, chestnut, and western red cedar; namely, the reduction of the average values (in lodgepole pine on 155 poles) by one-half of the coefficient of variation, and then rounding the results upward to the nearest even hundred pounds.

The Subcommittee on Pole Dimensions constructed the approved standard dimension tables upon the bases of these recommended ultimate fiber stresses, following the principles underlying the standard dimensions of the other four species.[3] The sizes at 6 feet from the butt in all six tables have been so fixed with respect to ground-line resisting moments, that, for any given class and length of pole, all six species are equal in strength. In calculating these 6-feet-from-butt sizes, distance from the butt to the ground line for any given pole was assumed, by definition, to be as shown in the column in the tables headed "Ground Line Distance from Butt."[3] The equality-in-strength principle holds good, however, for any reasonable depth of set required.

The two new tentative specifications are similar in form and arrangement to the four older ones. The material requirements cover shape and straightness of grain; they limit defects such as knots, checks, insect damage and decay; and they define the minimum quality of acceptable poles.

Departures from straightness are held within practical limits for ordinary use. Decay and the presence of wood-rotting fungi are generally prohibited. The question of including poles cut from sound, dead trees received careful consideration, and fire-killed poles are acceptable only by special agreement between producer and purchaser.

[1] Bell Telephone Laboratories, New York; Chairman, Sectional Committee on Wood Poles (O5).

[2] Bell Telephone Laboratories, New York; member of Special Subcommittee on Pole Dimensions and Subcommittee on Western Red Cedar Poles.

[3] See ASA BULLETIN, December, 1931, p. 36.

As in the case of the earlier standards, it was found impracticable to limit checks in a precise manner. With respect to knots, however, definite limitations have been established, following studies organized by Messrs. Lindsay and Michener of a similar character to those conducted in the case of the other pole species by the Special Subcommittee on Knots.

With the approval of the new standards for lodgepole pine and Douglas fir, the six major pole timbers of the United States have been brought into a rational uniform standardization system, designed to serve the best interests, as far as they are known and interpreted, of producer and consumer.

ASA Approves Standard for Marking Gold Plate Articles

The Commercial Standard for Marking of Gold-Filled and Rolled Gold Plate Articles Other than Watch Cases (CS 47-34) was approved as American Standard (Z31-1933) on December 27, 1933, following the announcement of the Bureau of Standards that it had been accepted by various branches of the jewelry industry and other industries concerned.

The standard provides definitions of quality marks for gold-filled and rolled gold plate articles and limits the use of the terms "gold filled" and "rolled gold plate" to minimum qualities of gold covering on plated articles. The terms "gold filled" and "rolled gold plate" are confined to gold-plated articles produced by processes where gold is mechanically applied to the base metal, thus excluding gold plate manufactured by electro-deposition methods.

Copies of the standard in mimeographed form are now available from the Bureau of Standards, Washington, D. C. and from the American Standards Association. Printed copies will soon be available.

Committee on Power Switchgear Recommends Addition to Scope

At a meeting of the Sectional Committee on Power Switchgear (C37), held on January 22, a special subcommittee on scope recommended that additional types of apparatus be included in the scope of the committee's work. These recommendations were concurred in by the sectional committee, and have been submitted to the sponsor, the Electrical Standards Committee, for its approval The types of apparatus now recommended for inclusion in the scope of the committee are: high voltage fuses (above 750 volts) and current limiting resistors for use with such fuses; metal clad switchgear; relays; network protectors; switchgear assemblies; automatic switchgear; and power connectors of the type used in connection with switchgear.

The committee also reviewed the work already accomplished by its present subcommittees, covering the following subjects: oil support breakers; disconnecting and horn gap switches; insulation electrical tests.

The Role of Statistical Method in Economic Standardization

An abstract of the lecture on "The Role of Statistical Method in Economic Standardization," presented by Dr. W. A. Shewhart, Bell Telephone Laboratories, New York, at the University of London in May, 1932, has been published by the Econometric Society. Copies are available from the Bell Telephone Laboratories, 463 West Street, New York, or through the ASA office.

Dr. Shewhart writes in popular language, his thesis being the application of statistical method in establishing and maintaining economic standards of quality. The scope of his paper is indicated in the subheads: What is a standard? The notion of statistical stability. The statistical aspects of human wants. Efficient production method. Econometrics and industrial standardization.

Symposium on Graphic Arts

A symposium on the Graphic Arts, including articles on selection of the correct printing process, envelopes, photo-engraving, designing advertisements, paper, direct mail advertising, and printing ink, is published in the January issue of *Pacific Purchaser.*

A discussion of savings which may be expected from standardization of stationery, supplies, and printing, and methods of standardizing forms and supplies is included in the article "Valuable Hints to the Buyer of Printing" by Walter H. King, purchasing agent of the Wells-Fargo Bank and Union Trust Company.

This issue may be purchased from the Purchasing Agents' Association of Northern California, Inc., 433 California Street, San Francisco, or through the ASA office, at 20 cents each.